

Chemguide – questions

STRONG AND WEAK BASES

1. Use sodium hydroxide and ammonia to help you to explain what is meant by a strong base and a weak base.
2. Work out the pHs of the following solutions of strong bases. $K_w = 1.00 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$
 - a) $0.200 \text{ mol dm}^{-3}$ sodium hydroxide solution
 - b) $0.0100 \text{ mol dm}^{-3}$ potassium hydroxide solution
 - c) $0.0200 \text{ mol dm}^{-3}$ calcium hydroxide solution
3. Don't bother with this question unless you need to know about K_b and pK_b .
 - a) Write an equation showing the equilibrium which occurs when ammonia dissolves in water.
 - b) Write an expression for K_b for ammonia.
 - c) Define pK_b .
 - d) The value for K_b for methylamine, CH_3NH_2 , is $4.37 \times 10^{-4} \text{ mol dm}^{-3}$. What is the value of pK_b ?
 - e) Two bases have the following values for K_b :
base A: $4.17 \times 10^{-10} \text{ mol dm}^{-3}$
base B: $5.37 \times 10^{-4} \text{ mol dm}^{-3}$

Which is the stronger base?

- f) Two different bases have the following values for pK_b :

base C: 4.75

base D: 3.27

Which is the stronger base?